

CLAIMS

1. Micro-fluxgate magnetometer comprising:
 - an open magnetic circuit comprising at
 - 5 least one magnetic core based on a magnetic material with at least two free ends,
 - one or several detection windings wound around the core,
 - one or several excitation windings wound
 - 10 around the magnetic core, so as to enable the entire magnetic material to reach saturation.
2. Micro-fluxgate magnetometer according to claim 1, the excitation windings being arranged so as
- 15 to induce a uniform core excitation magnetic field.
3. Micro-fluxgate magnetometer according to claim 1 or 2, at least one of the excitation windings projecting beyond at least one of the free ends of the
- 20 core.
4. Micro-fluxgate magnetometer according to claim 3, one of the excitation windings comprising at least one turn projecting entirely beyond at least one
- 25 of the ends of the magnetic core.
5. Micro-fluxgate magnetometer according to claim 3, in which the width of the excitation windings is l_{be} , at least one of the excitation windings
- 30 projecting from at least one of the free ends of the

magnetic core by a projecting length D greater than $(1/10) l_{be}$.

6. Micro-fluxgate magnetometer according to
5 claim 3 in which the total length of the magnetic core is $L_{noy\text{tot}}$ and the total length of the excitation windings is L_{betot} , where L_{betot} is greater than $L_{noy\text{tot}}$.

7. Micro-fluxgate magnetometer according to
10 claim 1 or 2 or 3, the excitation windings and the detection windings being interlaced.

8. Micro-fluxgate magnetometer according to
claim 3, the magnetometer also comprising a
15 compensation circuit capable of applying a magnetic field compensating a magnetic field to be measured.

9. Micro-fluxgate magnetometer according to
claim 3, the magnetometer also comprising a current
20 generator coupled to the excitation winding(s) and measurement means coupled to the detection winding(s).

10. Micro-fluxgate magnetometer according to
claim 3, the magnetometer being formed from a stack of
25 thin layers.